

App. No. 09/665,950
Amend. dated August 3, 2005
Resp. to Office Action dated May 10, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Please amend the claims as shown and delete Claims 11-31, without prejudice.

1. (Currently Amended) A test method for examining a shooting direction of a camera apparatus by comparing a position of a reference pattern and a position of judgment pattern on a displayed photographed image by an examiner so as to judge if said shooting direction is within a finely adjustable range which ~~is~~ can be adjusted by an image transformation, comprising:

~~obtaining a photographed image by photographing with said camera apparatus a~~
test chart placed at a predefined position ahead of said camera apparatus with a reference pattern
drawn on the test chart, the photographing producing a photographed image;

setting a judgment pattern at a specific position on said photographed image; and
displaying said photographed image with said judgment pattern on a display
device; and

~~wherein judging whether~~ said judgment pattern is within a finely adjustable range
which ~~is~~ can be adjusted by an image transformation.

2. (Original) The test method for examining the shooting direction of the onboard camera apparatus according to claim 1, wherein said judgment pattern having at least one judgment reference line extending in a horizontal direction and at least one judgment reference line extending in a vertical direction is set on said photographed image in said setting step.

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3. (Original) The test method for examining the shooting direction of the camera apparatus according to claim 1, wherein said photographed image is displayed on a navigation display provided in a navigation device in said displaying step.

4. (Previously Presented) A test method for examining whether a shooting direction of a camera apparatus attached to a body of a vehicle is within a finely adjustable range which is an adjustable range by an image transformation, comprising:

obtaining a photographed image by photographing with said camera apparatus a test chart placed at a predefined position ahead of the vehicle with a reference pattern drawn on the test chart;

determining a position of said reference pattern on said photographed image; and
judging on compliance or non-compliance of the shooting direction of said camera apparatus based on a relationship between the position of said reference pattern determined and a proper range defining a finely adjustable range which is an adjustable range by an image transformation for the shooting direction of said camera apparatus.

5. (Original) The test method for examining the shooting direction of the onboard camera apparatus according to claim 4, wherein said determining step includes:

evaluating a correlation of each of specific regions in said photographed image with a previously prepared specific brightness characteristics pattern; and

specifying a position of one of said regions having the greatest correlation as the position of said reference pattern;

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wherein said brightness characteristics pattern has the same brightness characteristics as said reference pattern shown on said photographed image.

6. (Original) The test method for examining the shooting direction of the onboard camera apparatus according to claim 5, wherein said determining step includes evaluating the correlation with said brightness characteristics pattern by searching through a specific search range within said photographed image,

wherein a setting position of said search range is determined based on the position of said reference pattern shown on said photographed image under conditions where said camera apparatus is properly mounted, and an area of said search range is set in consideration of a deviation of the shooting direction of said camera apparatus.

7. (Original) The test method for examining the shooting direction of the camera apparatus according to claim 1, wherein said reference pattern is at least one of a crisscross pattern and a rectangular pattern.

8. (Original) The test method for examining the shooting direction of the camera apparatus according to claim 4, comprising:

notifying an examiner of information concerning current mounting conditions of said camera apparatus or information concerning adjustment of the mounting of said camera apparatus according to the amount of deviation of said reference pattern when said reference pattern deviates from said proper range.

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9. (Previously Presented) A test method for examining the shooting direction of the camera apparatus attached to a body of a vehicle, comprising:

obtaining a photographed image by photographing with said camera apparatus a test chart placed at a predefined position ahead of the vehicle with a reference pattern drawn on the test chart;

determining a position of said reference pattern on said photographed image;

judging on compliance or non-compliance of the shooting direction of said camera apparatus based on a relationship between the position of said reference pattern determined and a proper range defining a range appropriate for the shooting direction of said camera apparatus;

notifying an examiner of information concerning current mounting conditions of said camera apparatus or information concerning adjustment of the mounting of said camera apparatus according to the amount of deviation of said reference pattern when said reference pattern deviates from said proper range

, wherein camera apparatus is attached to the vehicle body via a replaceable mounting member and the shooting direction of said camera apparatus is determined by the shape of said mounting member; and

said notifying step includes: selecting a mounting member having a shape for minimizing the amount of deviation of said reference pattern from a plurality of previously prepared mounting members having different shapes; and notifying the examiner of said selected mounting member.

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10. (Original) The test method for examining the shooting direction of the onboard camera apparatus according to claim 1, wherein said camera apparatus is a stereo camera apparatus having a pair of cameras, and said photographed image is an image photographed by one of said cameras.

11.-31. (Cancelled)

32. (Previously Presented) A test method for examining a shooting direction of a camera apparatus to judge whether or not the camera apparatus can be positioned within a finely adjustable range which is adjusted by an image transformation with respect to the deviation of a camera position, comprising:

obtaining a photographed image by photographing with said camera apparatus a test chart placed at a predefined position ahead of said camera apparatus with a reference pattern drawn on the test chart;

setting a judgment pattern at a specific position on said photographed image;

displaying said photographed image with said judgment pattern on a display device; and

examining compliance or non-compliance of the shooting direction of said camera apparatus by comparing a position of said reference pattern and a position of said judgment pattern on said displayed photographed image.

33. (Previously Presented) The test method for examining the shooting direction of the onboard camera apparatus according to claim 32, wherein said judgment pattern having at least one judgment reference line extending in a horizontal direction and at least one judgment

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reference line extending in a vertical direction is set on said photographed image in said setting step.